

specifying domains for the DARPA Coordinators program.

In realistic environments, actions often have uncertain outcomes and can have complex relationships with other tasks. The planner approaches problems by considering all possible actions that may be taken from any state reachable from a given, initial state, and from within the constraints of a given task hierarchy that specifies what tasks may be performed by which team member.

*This program was written by Bradley Clement, Steven Schaffer, and Gregg Rabideau of Caltech for NASA's Jet Propulsion Laboratory. Further information is contained in a TSP (see page 1).*

*This software is available for commercial licensing. Please contact Karina Edmonds of the California Institute of Technology at (626) 395-2322. Refer to NPO-44019.*

error in a spacecraft with a flexible appendage when said spacecraft must induce translational momentum by firing (in open loop) large thrusters along a desired direction for a given period of time. The controller is dynamic with two integrators and requires measurement of only the angular position and velocity of the spacecraft. The global stability of the closed-loop system is guaranteed without having access to the states describing the dynamics of the appendage and with severe saturation in the available torque.

Spacecraft apply open-loop thruster firings to induce a desired translational momentum with an extended appendage. This control algorithm will assist this maneuver by stabilizing the attitude dynamics around a desired orientation, and consequently minimize the maneuver execution errors.

*This work was done by Behçet Açıkmeşe of Caltech for NASA's Jet Propulsion Laboratory.*

*The software used in this innovation is available for commercial licensing. Please contact Karina Edmonds of the California Institute of Technology at (626) 395-2322. Refer to NPO-44376.*

## Grants Document-Generation System

The Grants Document-Generation System (GDGS) software allows the generation of official grants documents for distribution to the appropriate parties. The documents are created after the selection and entry of specific data elements and clauses. GDGS is written in Cold Fusion that resides on an SQL2000 database and is housed on-site at Goddard Space Flight Center. It includes access security written around GSFC's (Goddard Space Flight Center's) LIST system, and allows for the entry of Procurement Request information necessary for the generation of the resulting Grant Award.

*This work was done by Terri Hairell, Lev Kreymer, Greg Martin, and Patrick Sheridan of the INDUS Corporation for Goddard Space Flight Center. For further information, contact the Goddard Innovative Partnerships Office at (301) 286-5810. GSC-15187-1*

## Attitude-Control Algorithm for Minimizing Maneuver Execution Errors

A G-RAC attitude-control algorithm is used to minimize maneuver execution